

CLAIMS

What is claimed is:

1 1. A cylindrical wear resistant band for providing a wear protection
2 surface over an inside surface of a cylindrical member in a rock crusher, the
3 cylindrical wear resistant band comprising:

4 a cast piece including a plurality of curvilinear segments, the
5 curvilinear segments being separated from each other by a portion of reduced
6 thickness, whereby the portion of reduced thickness can be cut through to separate
7 the curvilinear segments after installation on the inside surface of the cylindrical
8 member in the rock crusher.

1 2. The cylindrical wear resistant band of claim 1, wherein the
2 curvilinear segments are formed of a ceramic material.

1 3. The cylindrical wear resistant band of claim 1, wherein the
2 curvilinear segments are formed of materials containing iron.

1 4. The cylindrical wear resistant band of claim 2, wherein the cast
2 piece forms an arc of 360 degrees.

1 5. The cylindrical wear resistant band of claim 1, wherein the cast
2 piece forms an arc of at least 180 degrees.

1 6. The cylindrical wear resistant band of claim 1 wherein the cast
2 piece forms an arc of at least 90 degrees.

1 7. The cylindrical wear resistant band of claim 1, wherein the
2 cylindrical member is configured as a concave for a gyratory crusher, and the cast
3 piece includes at least three curvilinear segments.

8. The cylindrical wear resistant band of claim 1, wherein the portion of reduced thickness is a groove having a depth of less than an average thickness from an inside surface of the cast piece to an outside surface of the cast piece.

9. In a rock crusher including a wear protection arrangement for a surface to protect the surface from wear, the surface supporting a crushing operation of the rock crusher, the wear protection arrangement comprising:
a plurality of curvilinear segments connected by a portion of reduced thickness.

10. The wear protection arrangement of claim 9, wherein the segments are formed of a metal material.

11. The wear protection arrangement of claim 9, wherein the portions of reduced thickness are vertical with respect to the rock crusher.

12. The wear protection arrangement of claim 9, wherein the curvilinear segments are comprised of at least three segments and two of the segments are connected by the portion of reduced thickness and a third of the segments is connected to one of the two segments by another portion of reduced thickness.

13. A method of repairing or manufacturing a rock crusher having a shell, the shell being exposed to wear when the rock crusher is operational, the method comprising step of:

attaching a one piece wear band including segments separated by a portion of reduced thickness to the shell.

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1 14. The method of claim 13, further comprising the step of:
2 cutting the wear band at the portion of reduced thickness.

1 15. The method of claim 14, wherein the cutting step includes
2 mechanically cutting or cutting with heat.

1 16. A concave for a gyratory crusher, the gyratory crusher including
2 a shell and a spider, the shell having a concave surface, the shell and the spider
3 defining a recess, the concave comprising:
4 a top end having a flange, the flange being configured to be received
5 in the recess.

1 17. The concave of claim 16, further comprising:
2 a lip extending above the flange.

1 18. The concave of claim 17, wherein the lip has an inside surface
2 continuous with an inside surface of the concave.

1 19. The concave of claim 16, wherein the flange includes at least one
2 aperture.

1 20. The concave of claim 16, wherein the concave is an annular
2 ring.

1 21. A gyratory crusher, comprising:
2 a shell;
3 a spider disposed over the shell, the shell and the spider defining a
4 recess; and

5 a concave covering at least a portion of the shell, the concave
6 including a top end having a flange, the flange being configured to be received in
7 the recess.

1 22. The gyratory crusher of claim 21, further comprising:
2 a lip extending above the flange.

1 23. A method of repairing or assembling a gyratory rock crusher
2 including a spider and a shell the method comprising:
3 placing a concave element on a rim of the shell, the concave element
4 having a flange and a lip, the flange resting on the rim of the shell; and
5 disposing the spider over the shell, thereby capturing the flange
6 between the spider and the rim of the shell.

1 24. The method of claim 23, wherein a gap is defined by the flange
2 and spider, further comprising:
3 filling the gap with backing material.

1 25. The method of claim 23, wherein the flange includes an aperture
2 and further comprising:
3 pouring backing material through the aperture.

1 26. The method of claim 25, wherein the backing material is poured
2 after the disposing step.

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4 a cast piece including a plurality of curvilinear segments, the
5 curvilinear segments capable of being separated from each other, whereby the band
6 can be cut to separate the curvilinear segments after installation on the inside surface
7 of the cylindrical member in the rock crusher.

1 28. The cylindrical wear resistant band of claim 27, further
2 comprising:
3 portions of reduced thickness separating the curvilinear segments.